KISSsoft
Gear Design Software

Release 2024 – Selected Features

Calculation of transmissions

- System calculations with KISSsoft System Module
- Intuitive modeling for concept development

KISSsoft System Module incorporates functions for calculating transmissions and replaces the previous KISSsys® software. System Module is fully integrated into KISSsoft® and is exceptionally user-friendly, especially when it comes to concept development. A multitude of additional functions are described in separate documents.

Strength calculation for cylindrical gears

- Case hardening depth according to FVA 271
- Calculation of factors for flank and root

Case hardening depth has a significant influence on gear strength. Investigations have also shown that the optimum case hardening depths for flank and root are different. Case hardening depth is the decisive factor in defining manufacturing time and costs for large gears.

Calculations for determining case hardening depth factors according to FVA 271 are now available in KISSsoft. If required, these factors can also be included in the calculation of permissible flank and root stresses.

Latest standards for bevel gears

- Latest versions of the ISO 10300 and DIN 3965 standards
- Calculation of misalignments from load spectra and export options

Various standards for bevel gears have been updated. The 2023 version of the ISO 10300 strength standard is now available in KISSsoft. It includes a slightly increased Hertzian pressure, reflecting the latest findings from recent loaded tooth contact analyses.

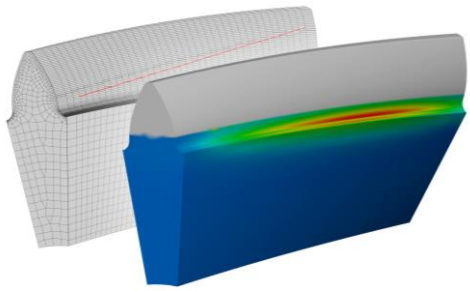
A new 2023 version of the DIN 3965 tolerance standard has been issued. The previous standard has been revised so that tolerance values are now defined using formulae instead of tables. This also removes the jumps between individual tolerance classes.

The misalignment calculation (E, P, G and Sigma) is now also available for load spectra. Values can be exported directly to GEMS® and used for further analysis with FE.

Powerful 3D FEM calculation for tooth root stresses

- Mixed FE meshes have been developed
- Integrated evaluation and graphics

Using FEM to analyze tooth root stress is important for non-standard gears. This applies, for example, to helical gears with high contact ratios, special gears or grinding notches.



In KISSsoft, you can now perform a fully integrated 3D FEM analysis of tooth root stresses. Mixed FE meshes consisting of tetrahedron and hexahedron mesh elements have been developed for more efficient meshing.

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Sharing Knowledge

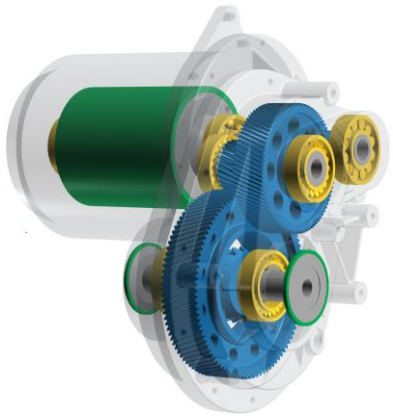
Contact analysis is used to determine line load. A new feature is the matching meshing in the 3D FEM calculation to the settings in the contact analysis to ensure results are as accurate as possible.

Displaying the gear body

- New gear calculation graphics
- Gear bodies are now displayed in shafts and gear units

The calculation of gear body deformation using FEM is integrated in the KISSsoft gear calculation. It enables precise determination of the face load distribution and the definition of flank modifications.

New gear calculation graphics display the gear body and the gearing as a single unit. The gear can be exported together with the gear body for more extensive calculations.



In KISSsoft System Module, the gear body can also be displayed in the shaft calculation and the system calculation.

Spline analysis according to Dudley

- Strength calculation according to Dudley
- For splines with crowning

Rating splines according to Dudley is a well-established approach in the aviation industry and an important tool for sizing splines.

KISSsoft has implemented functions for calculating crowned splines according to Dudley. The safety for compressive stresses is also output in the calculation according to AGMA 6123. Compressive stresses are calculated independently for the shaft and hub. This calculation approach also takes the number of rotations into account.

Extended development environment

- Breakpoints can now be set
- Interim values can be extracted

In practice, having the possibility to make custom modifications to a software system is a frequently requested feature. Among other things, this means company-specific calculations can be implemented in KISSsoft.

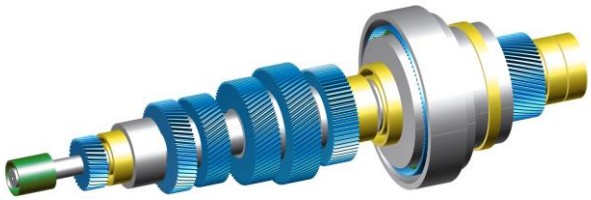
KISSsoft's SKRIPT programming language has been steadily revised and refined over the years. The development environment in the current release has been extended so that it is now possible to set breakpoints. Interim values can now simply be extracted.

Lines are now displayed in color, making the script code easier to read and enabling users to identify blocks of loops, for example, more quickly.

Shaft calculation

- Shaft reliability per cross section
- Use of tables to select ISO fits

As a new feature in the shaft calculation, the reliabilities in each cross section are now taken into account. These are then multiplied to create a resulting shaft reliability.



The ISO fits for bearing seats can now be selected from a table. There is additionally the option to input your own allowance values.

A test version is available upon request from our website at: www.kisssoft.com/trial